CLAIMS

1. Receiver for modulated incoming signals with a carrier frequency f_0 and a bandwith B, whereby a band-pass filter is limiting the incoming signal and a downstream multiplier is multiplying the bandlinimted signal with a sinusoidal signal with a frequenc $f<f_0$, whereafter the output signal of the mulitplier s(t) is the input signal of a downstream "Zero-Crossing"-Decoder, whereby the output signal has an intermediate frequency $f_{IF}= f_0-f$, with $f_{IF} > B/2$,

   characterized by the fact, that

   the "Zero-Crossing"-Decoder is part of a Microprocessor, and that the signal s(t) is the input signal to one of the microprocessors inputs (E), whereby the microprocessor has a timer (or counter) which counts with a frequency f_{CL}, whereby f_{CL} is smaller than the intermediate frequency f_{IF}, and the microprocessor is determinating (calculating) the time distances δ_n of the zero-crossings of the input signal using the timer (counter) values.

2. Receiver according to claim 1, wherein a memory holds the values of the time intervals δ_n of one burst.

3. Receiver according to claim 1, wherein a memory holds the values - as a vector e - of the time intervals δ_n each subtracted by the value $1/f_{IF}$.

4. Receiver according to claim 1, wherein an estimator (decoder) is estimating the transmitted data by using an approximated linear system model ($e = Ad + n$) of the transmitting system.

5. Receiver according to claim 4, wherein the estimator calculates the quality of each received data value, whereby the quality is a statement of the probability whether a transmitted data value was correctly transmitted.

6. Receiver according to claim 4 or 5, wherein the estimator is a linear filter, whereby a threshold device is applied to the output of the estimator for detecting the data values.

7. Receiver according to claim 4 or 5, wherein the estimator is a Max-Log-ML detector.

8. Receiver according to claim 1, wherein the frequency f_{CL} is within the parameters of $f_{IF}/8 <= f_{CL} < f_{\mu Proc}$, with $f_{\mu Proc}$ is the frequency of the microprocessor or the timer (counter).

9. Receiver according to claim 1, wherein the input (E) of the microprocessor is a Timer input, counter input or a normal signal input.

10. Receiver according to claim 9, wherein a capacitor is in downstream of the multiplier.

11. Receiver according to claim 9, wherein the signal s(t) is free of direct voltage and that an Offset is added by an adder.

12. Receiver according to claim 9, wherein the receiver comprises more than one band-pass filters and multipliers for receiving multiple incoming signals with different frequencies $f_{i,0}$, whereby a selector is selectively connecting the signals $s_i(t)$ to the input of the microprocessor.

13. Receiver according to claim 9, wherein the receiver comprises more than one band-pass filters and multipliers for receiving multiple incoming signals with different frequencies $f_{i,0}$, whereby each signal $s_i(t)$ is the input signal for an input E_i of the microprocessor.

14. Receiver according to claim 1, wherein the incoming signal is a phase modulated signal, especially modulated with CPM (continuous phase modulation), especially a GSM, Bluetooth or DGPS-signal.

15. Method for data detecting in a transmitting system with continuous phase modulation, wherein the incoming signal is provided in an intermediate frequency interval with a preferred intermediate frequency, and that the incoming signal is limited by a band-pass filter and the bandwidth is approximately the symbol rate, whereby a "Zero-Crossing"-detector transforms the band-limited signal into a sequence of approximately timely equidistant sampling values, which represent the useful (effective) portion of the frequency-response curve which is disturbed by a disturbance, and that the sampling values are interpreted by a linear system model with sampling values in symbol or intermediate frequency cycle, with linear digital filter in downstream of the "Zero-Crossing"-detector, and threshold detection is applied after the digital filter.